

## WHAT IS CLAIMED IS:

1. A name resolution device for managing a name of each node connected to a network and an address for identifying  
5 each node, comprising:  
a node information storing unit configured to store a node information containing a name of a node, a network identification information, a prefix indicating a position on the network, and an interface identification information  
10 of a node, for each node;  
a node information collecting unit configured to collect the node information of other nodes connected to the network, through the network; and  
a node information updating unit configured to update  
15 the node information stored in the node information storing unit, according to the node information of the other nodes collected by the node information collecting unit, by updating the prefix stored in the node information storing unit by using the interface identification information  
20 contained in the node information collected by the node information collecting unit as a key.
2. The name resolution device of claim 1, wherein the node information updating unit updates the node information  
25 stored in the node information storing unit for which the interface identification information coincides with that of the node information collected by the node information collecting unit but the prefix does not coincide with that of the node information collected by the node information  
30 collecting unit.
3. The name resolution device of claim 1, further comprising:  
a function conversion unit configured to convert the  
35 interface identification information corresponding to a

prescribed node among the node information stored in the node information storing unit, by using a one way function;

5 a comparing unit configured to compare the interface identification information converted by using the one way function which is received from another node, with the interface identification information as converted by the function conversion unit; and

10 a node information providing unit configured to provide the prefix corresponding to the interface identification information compared by the comparing unit to the another node, only when it is judged that the interface identification information coincides at the comparing unit.

15 4. The name resolution device of claim 3, wherein the function conversion unit uses a hash function as the one way function.

20 5. The name resolution device of claim 1, further comprising:

a prefix conversion unit configured to convert the prefix into a position identification information which is in one-to-one correspondence to the prefix;

25 wherein the node information storing unit stores the position identification information obtained by the prefix conversion unit, as the prefix.

6. The name resolution device of claim 1, further comprising:

30 an address generation unit configured to generate an IPv6 address dynamically, according to the node information stored in the node information storing unit.

7. A name resolution method for managing a name of each  
35 node connected to a network and an address for identifying

each node, comprising:

storing a node information containing a name of a node, a network identification information, a prefix indicating a position on the network, and an interface

5 identification information of a node, for each node;

collecting the node information of other nodes connected to the network, through the network; and

10 updating the node information stored by the storing step, according to the node information of the other nodes collected by the collecting step, by updating the prefix stored by storing step by using the interface identification information contained in the node information collected by the collecting step as a key.

15 8. The name resolution method of claim 7, wherein the updating step updates the node information stored by the storing step for which the interface identification information coincides with that of the node information collected by the collecting step but the prefix does not  
20 coincide with that of the node information collected by the collecting step.

9. The name resolution method of claim 7, further comprising:

25 converting the interface identification information corresponding to a prescribed node among the node information stored by the storing step, by using a one way function;

30 comparing the interface identification information converted by using the one way function which is received from another node, with the interface identification information as converted by the converting step; and

35 providing the prefix corresponding to the interface identification information compared by the comparing step to the another node, only when it is judged that the

interface identification information coincides at the  
comparing step.

10. The name resolution method of claim 9, wherein the  
5 converting step uses a hash function as the one way  
function.

11. The name resolution method of claim 7, further  
comprising:  
10 converting the prefix into a position identification  
information which is in one-to-one correspondence to the  
prefix;  
wherein the storing step stores the position  
identification information obtained by the converting step,  
15 as the prefix.

12. The name resolution method of claim 7, further  
comprising:  
generating an IPv6 address dynamically, according to  
20 the node information stored by the storing step.

13. A computer program product for causing a computer to  
function as a name resolution device for managing a name of  
each node connected to a network and an address for  
25 identifying each node, the computer program product  
comprising:

a first computer program code for causing the computer  
to store a node information containing a name of a node, a  
network identification information, a prefix indicating a  
30 position on the network, and an interface identification  
information of a node, for each node;

a second computer program code for causing the  
computer to collect the node information of other nodes  
connected to the network, through the network; and  
35 a third computer program code for causing the computer

to update the node information stored in the first computer program code, according to the node information of the other nodes collected by the second computer program code, by updating the prefix stored in the first computer program  
5 code by using the interface identification information contained in the node information collected by the second computer program code as a key.

14. The computer program product of claim 13, wherein the  
10 third computer program code updates the node information stored in the first computer program code for which the interface identification information coincides with that of the node information collected by the second computer program code but the prefix does not coincide with that of  
15 the node information collected by the second computer program code.

15. The computer program product of claim 13, further comprising:

20 a fourth computer program code for causing the computer to convert the interface identification information corresponding to a prescribed node among the node information stored in the first computer program code, by using a one way function;

25 a fifth computer program code for causing the computer to compare the interface identification information converted by using the one way function which is received from another node, with the interface identification information as converted by the fourth computer program  
30 code; and

a sixth computer program code for causing the computer to provide the prefix corresponding to the interface identification information compared by the fifth computer program code to the another node, only when it is judged  
35 that the interface identification information coincides at

the fifth computer program code.

16. The computer program product of claim 15, wherein the  
fourth computer program code uses a hash function as the  
5 one way function.

17. The computer program product of claim 13, further  
comprising:

a fourth computer program code for causing the  
10 computer to convert the prefix into a position  
identification information which is in one-to-one  
correspondence to the prefix;

wherein the first computer program code stores the  
position identification information obtained by the fourth  
15 computer program code, as the prefix.

18. The computer program code of claim 13, further  
comprising:

a fourth computer program code for causing the  
20 computer to generate an IPv6 address dynamically, according  
to the node information stored in the first computer  
program code.

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